

REMARKS/ARGUMENTS

Claims 1-4 are pending herein. Claims 1-4 have been amended hereby to correct matters of form and for clarification purposes only. Applicants respectfully submit that no new matter has been added.

1. The objection to the disclosure is noted, but deemed moot in view of the substitute specification paragraphs submitted herewith. Accordingly, Applicants respectfully request that the above objection be reconsidered and withdrawn.

2. The objection to claim 1 is noted, but deemed moot in view of rewritten claim 1 submitted above. Accordingly, Applicants respectfully request that the above objection be reconsidered and withdrawn.

3. Claims 1 and 3-4 were rejected under §102(e) over Kosakai. Applicants respectfully submit that this rejection is moot for the reasons explained below.

The effective date as a prior art reference for the Kosakai patent under §102(e) is the U.S. filing date of May 31, 2001. When the present application was originally filed in the U.S. PTO, priority was claimed from JP 2001-019,487, which was filed on January 29, 2001. A certified copy of the JP '487 priority document was filed on April 18, 2002. Accordingly, Applicants respectfully submit that the Kosakai patent is not prior art with respect to the present application.

Attached hereto as Appendix A is a Verified English-language translation of JP '487. Applicants respectfully submit that all claims pending herein are supported by the disclosure in the priority document.

For at least the foregoing reasons, Applicants respectfully request that the above rejection be reconsidered and withdrawn.

4. Claim 4 was rejected under §103(a) over Kosakai in view of Anderson. Applicants respectfully submit that this rejection is moot for the same reasons explained in section 3 above.

That is, Applicants respectfully submit that the primary reference (the Kosakai patent) is not prior art with respect to the present application. Accordingly, Applicants respectfully request that the above rejection be reconsidered and withdrawn.

5. Claims 1-4 were rejected under §103(a) over Anderson in view of Burkhart. Applicants respectfully traverse this rejection.

Independent claim 1 recites an electrostatic chuck having an insulation layer including a mount plane on which a wafer is mounted, an inner electrode provided in the insulation layer, and projecting portions protruding from the mount plane which include contact planes that contact the wafer. A backside gas flows in a space defined by the mount plane, the projecting portions, and the wafer such that the wafer is attracted to the mount plane so as to maintain temperature uniformity across the wafer. The total area of the contact planes of the projecting portions is in a range of 5% to 10% of the area of the inner electrode, and the heights of the projecting portions are in a range of 5 μm to 10 μm .

Applicants respectfully submit that the patterned silicon plate 11 of Anderson, which the PTO designated as an “inner electrode,” is not an “inner electrode” as recited in pending claim 1, because the patterned silicon plate is actually exposed to the atmosphere at its side surface. That is, since the electrode is exposed, it certainly cannot be considered to be an “inner” electrode of the electrostatic chuck. Moreover, as one skilled in the art would realize, the substrate in Anderson is biased by the self-biased voltage in a plasma atmosphere while a high voltage is applied to the electrode. Under such conditions, since the electrode is not entirely embedded in an insulation layer, abnormal discharge occurs between the substrate and the electrodes, which is undesirable.

Acknowledging this clear defect in Anderson, the PTO admitted that Anderson does not disclose that “the inner electrode is formed in the insulation layer” (Office Action, page 6, lines 16-17). In an attempt to overcome the admitted deficiency of the primary reference, the PTO relied on Burkhardt.

Specifically, the PTO asserted that it would have been obvious to a person of ordinary skill in the art to “modify Anderson et al. by forming the internal electrode in the insulation layer, as taught by Burkhardt, since such a modification would protect the internal electrode from the external environment (electrically isolates the internal electrodes)” (Office Action, page 6, line 19--page 7, line 2). Applicants respectfully submit that this assertion is incorrect for the following reasons.

First, Applicants respectfully submit that Anderson lacks the claimed insulation layer altogether. That is, reference numeral 15' shown in Fig. 3 of Anderson merely represents the chuck face 15 (i.e., top surface of the electrode 11) having a silicon nitride coating thereon according to one embodiment of Anderson's chuck. Even if the PTO took this layer to be an insulation layer, however, the layer 15' extends over the entire surface of the chuck, including the contact planes of the islands 19'. As such, even the portions of the silicon nitride layer that only correspond to the lower chuck-face 15' locations (and not the islands 19') cannot be considered to be the “mounting plane” of the insulation layer from which the coated islands protrude, because the same “insulation layer” 15' actually covers the protruding islands 19', as well.

Second, Applicants respectfully submit that Anderson's silicon nitride coating layer already protects the electrode from the external environment. As such, one skilled in the art would not have been motivated to make the combination suggested by the PTO in order to protect the patterned silicon plate 11 from the external environment, as the PTO asserted.

Additionally, Applicants respectfully submit that, following the PTO's element designations outlined in the Office Action, it would be impossible to embed the “internal electrode” 11 of Anderson in the “insulation layer” 15' of Anderson based on

the teaching of Burkhart, since the insulation layer 15' of Anderson is merely a silicon nitride layer that already covers the upper surface of the electrode 11. Further, the silicon nitride layer covers the islands and as such, does not correspond to the claimed insulation layer, as explained above.

That is, while Burkhart appears to show an electrode 106 embedded within a ceramic chuck body 108 (see Burkhart's Figs. 1 and 3, for example), there is no disclosure or suggestion of another insulation layer other than the ceramic chuck body 108 itself being an insulating material. In view of the fact that both Anderson's and Burkhart's chucks lack the claimed insulation layer, Applicants respectfully submit that the suggested combination does not include all of the structural elements recited in pending claim 1.

Even if the ceramic chuck body 108 of Burkhart could be considered to include an insulation layer, however, one skilled in the art would then have to import Burkhart's entire ceramic chuck body into Anderson's structure in order to obtain an inner electrode provided in an insulation layer. Applicants respectfully submit that providing an additional insulation layer would always cover the islands 19 because the SiO₂ islands are formed on and protrude directly from the otherwise flat chuck face 15 of the patterned silicon plate (electrode) 11 according to the teaching in Anderson. Further, substituting Anderson's metal chuck with Burkhart's ceramic chuck would completely eviscerate the teaching of Anderson, which clearly relates to a metal chuck having a silicon layer (electrode) formed thereon.

For at least the foregoing reasons, Applicants respectfully submit that one skilled in the art could not possibly have arrived at the present invention in view of the applied references without the benefit of Applicants' present disclosure. Applicants respectfully submit that all claims pending herein define patentable subject matter over the applied references for the reasons explained above. Accordingly, Applicants respectfully request that the above rejection be reconsidered and withdrawn.

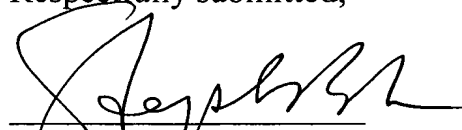
If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Examiner is requested to acknowledge receipt and consideration of the Information Disclosure Statement filed herewith.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

November 21, 2003
Date

Respectfully submitted,



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Attachment: Appendix A - Verified English-language translation

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